IN THE CLAIMS:

At page 11, line 1, cancel "Claims" and substitute

--**WE CLAIM AS OUR INVENTION:**-- therefor.

5   Claims 1-19 have been cancelled.

Claims 1-19 (cancelled)

20. (New)   A method for extracting an EMG signal out of a raw signal, said raw signal being obtained by a plurality of electrodes adapted to interact with a patient to capture signals from the diaphragm of the patient,
10   each electrode having an associated signal channel in which a raw signal is received from the associated electrode, said method comprising the steps of:

for each of said channels, automatically electronically determining a signal-to-noise ratio for the raw signal in that channel;

for each of said channels, automatically electronically determining a
15   weighting factor for that channel dependent on the signal-to-noise ratio of that channel; and

weighting the respective raw signals from the channels by the respective weighting factors determined for the channels, to obtain weighted raw signals, and summing the weighted raw
20   signal to obtain a summed signal representing a total EMG signal in said raw signals.

21. (New)   A method as claimed in claim 20 comprising, for each channel:

automatically electronically estimating a level of ECG activity in the raw
25   signal;

automatically electronically estimating a level of EMG activity in the raw signal;

automatically electronically determining said signal-to-noise ratio based on the estimated level of ECG activity and the estimated level of
30   EMG activity; and

normalizing said summed signal representing the total EMG signal.

22. (New) A method as claimed in claim 21 comprising automatically electronically calculating said signal-to-noise ratio according to the equation $R^n/(R+S)$, wherein R is the estimated level of EMG activity, S is the estimated level of ECG activity, and n is an integer greater than 1.

23. (New) A method as claimed in claim 21 comprising estimating the level of ECG activity by filtering an estimated ECG signal out of the raw signal and comparing the estimated ECG signal with a threshold value.

24. (New) A method as claimed in claim 22 wherein estimating the level of ECG activity comprises automatically electronically calculating a probability function indicating a probability that an ECG signal is included in the raw signal of the channel.

25. (New) A method as claimed in claim 24 comprising estimating the level of ECG activity only if said probability function indicates a predetermined level of probability that an ECG signal is included in the raw signal of the channel.

26. (New) A device for extracting an EMG signal out of a raw signal, said raw signal being obtained by a plurality of electrodes adapted to interact with a patient to capture signals from the diaphragm of the patient, each electrode having an associated signal channel in which a raw signal is received from the associated electrode, said device comprising:

an analysis unit that, for each of said channels, automatically electronically determines a signal-to-noise ratio for the raw signal in that channel, and automatically electronically determines a weighting factor for that channel dependent on the signal-to-noise ratio of that channel, and weights the respective raw signals from the channels by the respective weighting factors determined for the channels, to obtain weighted raw signals, and sums the weighted raw signal to obtain a summed signal representing a total EMG signal in said raw signals.

27. (New)   A device as claimed in claim 20 wherein said analysis unit, for each channel, automatically electronically estimates a level of ECG activity in the raw signal, automatically electronically estimates a level of EMG activity in the raw signal, automatically electronically determines said signal-to-noise ratio based on the estimated level of ECG activity and the estimated level of EMG activity, and normalizes said summed signal representing the total EMG signal.

28. (New)   A device as claimed in claim 21 wherein said analysis unit automatically electronically calculates said signal-to-noise ratio according to the equation $R^n/(R+S)$, wherein R is the estimated level of EMG activity, S is the estimated level of ECG activity, and n is an integer greater than 1.

29. (New)   A device as claimed in claim 21 wherein said analysis unit estimates the level of ECG activity by filtering an estimated ECG signal out of the raw signal and comparing the estimated ECG signal with a threshold value.

30. (New)   A device as claimed in claim 22 wherein said analysis unit estimates the level of ECG activity by automatically electronically calculating a probability function indicating a probability that an ECG signal is included in the raw signal of the channel.

31. (New)   A device as claimed in claim 24 wherein said analysis unit estimates the level of ECG activity only if said probability function indicates a predetermined level of probability that an ECG signal is included in the raw signal of the channel.

32. (New)   A computer-readable medium encoded with a computer program loadable into a computer for extracting an EMG signal out of a raw signal, said raw signal being obtained by a plurality of electrodes adapted to interact with a patient to capture signals from the diaphragm of the patient, each electrode having an associated signal channel in which a raw signal is received from the associated electrode, said computer program causing said computer to:

for each of said channels, determine a signal-to-noise ratio for the raw signal in that channel;

for each of said channels, determine a weighting factor for that channel dependent on the signal-to-noise ratio of that channel; and

weight the respective raw signals from the channels by the respective weighting factors determined for the channels, to obtain weighted raw signals, and sum the weighted raw signal to obtain a summed signal representing a total EMG signal in said raw signals.

33. (New)   A computer readable medium as claimed in claim 20 wherein said computer program causes said computer to, for each channel:

estimate a level of ECG activity in the raw signal;

estimate a level of EMG activity in the raw signal;

determine said signal-to-noise ratio based on the estimated level of ECG activity and the estimated level of EMG activity; and

normal said summed signal representing the total EMG signal.

34. (New)   A computer readable medium as claimed in claim 21 wherein said computer program causes said computer to calculate said signal-to-noise ratio according to the equation $R^n/(R+S)$, wherein R is the estimated level of EMG activity, S is the estimated level of ECG activity, and n is an integer greater than 1.

35. (New)   A computer readable medium as claimed in claim 21 wherein said computer program causes said computer to estimate the level of ECG activity by filtering an estimated ECG signal out of the raw signal and comparing the estimated ECG signal with a threshold value.

36. (New)   A computer readable medium as claimed in claim 22 wherein said computer program causes said computer to estimate the level of ECG activity by calculating a probability function indicating a probability that an ECG signal is included in the raw signal of the channel.

37. (New)   A computer readable medium as claimed in claim 24 wherein said computer program causes said computer to estimate the level of ECG activity only if said probability function indicates a predetermined level of probability that an ECG signal is included in the raw signal of the channel.